What is Claimed is:

1. A lowermost grid for a fuel assembly, the fuel assembly having a plurality of fuel rods held in place by a plurality of grid assemblies including the lowermost grid assembly and by a plurality of guide tubes, the guide tubes having fashioned lower ends for receiving a mechanical fastener therethrough, the lowermost grid comprising:

a first plurality of grid straps arranged substantially parallel to each other;

a second plurality of grid straps arranged substantially parallel to each other and substantially perpendicular to the first plurality of grid straps, said first and second plurality of grid straps intersecting each other to form a matrix of substantially square-shaped cells;

a perimeter grid strap; and

means for mechanically securing the grid assembly to a lower nozzle of a fuel cell, the means being structured to be sandwiched between a guide tube and the lower nozzle.

2. The lowermost grid according to claim 1, wherein the means for securing the grid assembly to a lower nozzle of a fuel cell comprises a grid insert secured within at least one of the cells, the grid insert being tube-shaped and having an upper end and lower end, the lower end having an internally projecting retention lip disposed thereon, the grid insert being structured to receive a guide tube secured therethrough by a mechanical fastener passing into the bottom end and secured to the guide tube, the retention lip being structured to permit passage of the mechanical fastener but not the guide tube therethrough, whereby the retention lip is held between the guide tube and lower nozzle.

3. The lowermost grid according to claim 2, wherein the grid insert is secured within the cell by welding.

4. The lowermost grid according to claim 3, wherein the grid insert is secured within the cell by an intersection weld with each of the four grid straps forming the cell.

5. The lowermost grid according to claim 1, wherein:

the fashioned lower ends of the guide tubes are threaded; and

the mechanical fastener is selected from the group consisting of a bolt and a screw.

6. A method of assembling a fuel assembly, the method comprising:

providing a first plurality of grid straps arranged substantially parallel to each other;

providing a second plurality of grid straps arranged substantially parallel to each other and substantially perpendicular to the first plurality of grid straps, said first and second plurality of grid straps intersecting each other to form a matrix of substantially square-shaped cells;

providing a perimeter grid strap; and

providing a grid insert secured within at least one of the cells, the grid insert being tube-shaped and having an upper end and lower end, the lower end having an internally projecting retention lip disposed thereon, the grid insert being structured to receive a guide tube secured therethrough by a mechanical fastener passing into the bottom end and secured to the guide tube.

7. The method according to claim 6, wherein the grid insert is secured within the cell by welding.

8. The method according to claim 7, wherein the grid insert is welded within the cell by an intersection weld with each of the four grid straps forming the cell.

9. The method according to claim 6, further comprising:

providing a plurality of intermediate grid assemblies, each intermediate grid assembly having a first plurality of grid straps arranged substantially parallel to each other, and a second plurality of grid straps arranged substantially parallel to each other and substantially perpendicular to the first plurality of grid straps, said first and second plurality of grid straps intersecting each other to form a matrix of substantially square-shaped cells;

providing a guide tube secured within each grid insert by a mechanical fastener passing into the bottom end and secured to the guide tube; and

installing a plurality of fuel rods within the cells of the lowermost grid and the intermediate grids by pulling the fuel rods through from the bottom of the fuel assembly.

10. The method according to claim 6, further comprising:

providing internal threads within a lower end of the guide tubes; and

wherein the mechanical fastener is a bolt or screw.

11. A fuel assembly, comprising:

a plurality of guide tubes having fashioned lower ends;

a lowermost grid assembly, having

a first plurality of grid straps arranged substantially parallel to each other;

a second plurality of grid straps arranged substantially parallel to each other and substantially perpendicular to the first plurality of grid straps, said first and second plurality of grid straps intersecting each other to form a matrix of substantially square-shaped cells;

a perimeter grid strap; and

means for securing the grid assembly to a lower nozzle of a fuel cell, the means being structured to be sandwiched between one of the guide tubes and the lower nozzle; and

a plurality of intermediate grid assemblies, each intermediate grid assembly having:

a first plurality of grid straps arranged substantially parallel to each other; and

a second plurality of grid straps arranged substantially parallel to each other and substantially perpendicular to the first plurality of grid straps, said first and second plurality of grid straps intersecting each other to form a matrix of substantially square-shaped cells, and

a plurality of fuel rods held in place by the lowermost grid assembly and the intermediate grid assemblies.

12. The fuel assembly according to claim 11, wherein the means for securing the grid assembly to a lower nozzle of a fuel cell comprises a grid insert secured within at least one of the cells, the grid insert being tube-shaped and having an upper end and lower end, the lower end having an internally projecting retention lip disposed thereon, the grid insert being structured to receive a guide tube secured therethrough by a mechanical fastener passing into the bottom end and secured to the

guide tube, the retention lip being structured to permit passage of the bolt or screw but not the guide tube therethrough, whereby the retention lip is held between the guide tube and lower nozzle.

13. The fuel assembly according to claim 11, wherein the grid insert is secured within the cell by welding.

14. The fuel assembly according to claim 13, wherein the grid insert is secured within the cell by an intersection weld with each of the four grid straps forming the cell.

15. The fuel assembly according to claim 11, wherein:

the fashioned lower ends of the guide tubes are threaded; and

the mechanical fastener is selected from the group consisting of a bolt and a screw.